(e.g., conditions in which the rear wheels are positioned on surfaces of loosely packed particles, such as sand, or surfaces having a lower coefficient of friction, such as ice and/or snow), one or both of the front wheels may be driven independently of the rear wheels in order to move the vehicle **5**. In some examples, both of first electric motor **175** and second electric motor **173** may be energized in order to drive both of the front wheels (e.g., first front wheel **167** and second front wheel **165**, respectively). In other examples, only one of the electric motors may be energized to drive only a single front wheel independent of the other front wheel (e.g., first electric motor **175** may be energized in order to drive first front wheel **167** independently relative to second front wheel **165**, or second electric motor **173** may be energized to drive second front wheel **165** independently relative to first front wheel **167**). In some examples, a selected drive mode of the vehicle **5** (e.g., all-wheel drive, rear-wheel drive, dual front-wheel drive, single front-wheel drive, etc.) may be selected by the operator **130** of the vehicle **5** via one or more user interface devices (e.g., touchscreens, buttons, etc.) positioned within a cabin of the vehicle **5** and in electrical communication with controller **12**. In other examples, the drive mode of the vehicle **5** may be selected by the controller **12** responsive to detected and/or estimated operating conditions of the vehicle **5** (e.g., vehicle speed, engine speed, etc.). In yet other examples, the drive mode of the vehicle **5** may be selected by the controller **12** responsive to detected and/or estimated environmental conditions (e.g., detection of rain, snow, etc. by sensors of the vehicle **5**).

[0024] The crankshaft **140** may be coupled to an integrated starter/generator **181** to enable a starting operation of engine **10** and to provide electrical energy to battery **58**. For example, during conditions in which the engine **10** is in a non-operating mode (e.g., a mode in which the engine **10** is off and is not combusting fuel/air within engine cylinders, such as cylinder **14**), an operator of the vehicle **5** (e.g., a user, driver, etc.) may adjust the engine **10** from the non-operating mode to an operating mode (e.g., a mode in which the engine is on and is combusting fuel/air within engine cylinders, such as cylinder **14**) via user input to one or more user input devices of the vehicle (e.g., user interaction with input devices of ignition system **190**, such as pressing an ignition button within a cabin of the vehicle). The controller **12** may transmit an electrical signal to the starter/generator **181** in response to the user input in order to actuate the starter/generator **181** to rotate the crankshaft of the engine **10** to perform the starting operation (e.g., adjusting the engine from the non-operating mode to the operating mode). The controller **12** may also transmit electrical signals to spark plug **192** in order to produce spark within cylinder **14**, and/or the controller **12** may transmit electrical signals to adjust an amount of opening of a nozzle of fuel injector **166** and/or fuel injector **170** in order to provide fuel to cylinder **14**.

[0025] During conditions in which the engine is in the operating mode (e.g., the engine **10** is on and combusting fuel/air), the integrated starter/generator **181** may receive a portion of the torque produced by the crankshaft **140** in order to generate electrical energy to be stored by battery **58** and/or utilized to energize the electric motors (e.g., first electric motor **175** and/or second electric motor **173**) to drive the front wheels of the vehicle. For example, during conditions in which the engine **10** is operating at a lower engine speed (e.g., idling, coasting, etc.), the starter/generator **181** may generator electrical energy to be stored by battery **58**. During conditions in which the engine **10** is operating at a higher engine speed (e.g., during acceleration of the vehicle **5**), the starter/generator **181** may generate electric energy from the rotational motion of the crankshaft **140** and may route (e.g., provide, deliver, etc.) the electrical energy to the first electric motor **175** and/or second electric motor **173** in order to drive the first front wheel **167** and/or second front wheel **165**. In some examples, the first electric motor **175** and second electric motor **173** may be energized (e.g., by starter/generator **181** and/or battery **58**) in order to drive the front wheels during conditions in which the engine **10** is in the non-operating mode and/or during conditions in which the engine **10** is operating at a lower engine speed (e.g., idling).

[0026] Cylinder **14** can receive intake air via a series of intake air passages **142**, **144**, and **146**. Intake air passage **146** can communicate with other cylinders of engine **10** in addition to cylinder **14**. In some examples, one or more of the intake passages may be coupled to a boosting device such as a turbocharger or a supercharger. For example, FIG. **1** shows engine **10** configured with a turbocharger including a compressor **174** arranged between intake air passages **142** and **144**, and an exhaust turbine **176** arranged along exhaust passage **148**. Compressor **174** may be at least partially powered by exhaust turbine **176** via a shaft **180** where the boosting device is configured as a turbocharger. However, in other examples, such as where engine **10** is provided with a supercharger, exhaust turbine **176** may be optionally omitted, where compressor **174** may be powered by mechanical input from a motor or the engine **10**. A throttle **162** including a throttle plate **164** may be provided along an intake passage of the engine for varying the flow rate and/or pressure of intake air provided to the engine cylinders. For example, throttle **162** may be positioned downstream of compressor **174** as shown in FIG. **1**, or alternatively may be provided upstream of compressor **174**.

[0027] Exhaust passage **148** can receive exhaust gases from other cylinders of engine **10** in addition to cylinder **14**. Exhaust gas sensor **128** is shown coupled to exhaust passage **148** upstream of emission control device **178**. Sensor **128** may be selected from among various suitable sensors for providing an indication of exhaust gas air/fuel ratio such as a linear oxygen sensor or UEGO (universal or wide-range exhaust gas oxygen), a two-state oxygen sensor or EGO (as depicted), a HEGO (heated EGO), a NOx, HC, or CO sensor, for example. Emission control device **178** may be a three way catalyst (TWC), NOx trap, various other emission control devices, or combinations thereof.

[0028] Each cylinder of engine **10** includes one or more intake valves and one or more exhaust valves. For example, cylinder **14** is shown including at least one intake poppet valve **150** and at least one exhaust poppet valve **156** located at an upper region of cylinder **14** (e.g., disposed within cylinder head **159**). In some examples, each cylinder of engine **10**, including cylinder **14**, may include at least two intake poppet valves and at least two exhaust poppet valves located at an upper region of the cylinder.

[0029] Intake valve **150** may be controlled by controller **12** via actuator **152**. Similarly, exhaust valve **156** may be controlled by controller **12** via actuator **154**. During some conditions, controller **12** may vary the signals provided to actuators **152** and **154** to control the opening and closing of the respective intake and exhaust valves. The position of